

# The Impact of Leader Turnover on the Onset and the Resolution of WTO Disputes

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Draft

## **Abstract**

Leader turnover in non-democratic states significantly increases the likelihood that a nation will be involved in a WTO dispute as either plaintiff or defendant. After the initiation of a WTO dispute, leader turnover also influences the likely dispute outcome. In particular, leader change in a non-democratic defendant state greatly increases the likelihood of significant concessions by the defendant. Leader change in democratic defendant states also increases concessions, although to a lesser extent. Within plaintiff states autocratic leader change also increases concessions, but leader change within democratic plaintiffs has no discernable effect on WTO dispute outcomes.

## **Introduction**

To retain power, political leaders need to reward their supporters with favorable policies; trade policy is one tool at a leader's disposal. When leader change occurs, the new leader is often backed by a different set of supporters than those who had supported his predecessor. As a consequence, different interests come to be represented in trade policy when leader turnover occurs. Such shifts in national priorities can create new conflicts and make existing conflicts easier to resolve. We explore these dynamics through analyses of the impact of leader change on the onset and resolution of WTO disputes.

WTO dispute 90 illustrates how leader change can affect the resolution of disputes. In October 1997, US requested that the WTO's Dispute Settlement Body (DSB) establish a panel to investigate its claims that India illegally retained quantitative restrictions on importation of a large number of agricultural, textile, and industrial products. Although, as we discuss later, the WTO DSB differs from a court, for clarity of language, throughout we refer to the complainant nation as the plaintiff and the nation alleged to have violated WTO rules as the defendant. By April 1999 the panel had finished its investigation. In the absence of agreement between US and India, it ruled India's policies violated WTO rules. India appealed, but the panel's ruling was upheld. However, it was only after the September - October 1999 elections, in which the conservative Bharatiya Janata Party (BJP) won a decisive victory that India announced it would comply with the WTO ruling. By April 2001, India had removed its tariffs.

Indian politics was tumultuous during this time. When the US first raised the issue of Indian tariffs, India was ruled by a coalition known as the United Front that was led by H.D. Deve Gowda of the Janata Dal Party. Gowda was often nicknamed “Mannina maga”, or “Son of Soil” for his support of Indian farmers. His coalition, combined with support from the Congress Party, promoted the interests of agriculture and the traditionally favored industrial sectors, all of which benefitted from the trade restrictions in dispute. In 1998, the United Front coalition collapsed and was succeeded by a right-wing coalition lead by Prime Minister Vajpayee of the BJP. This coalition lacked a cohesive majority in Parliament and lost a no-confidence vote in 1999 that precipitated the September-October elections in which the BJP won decisively. With sufficient votes in Parliament, Vajpayee implemented his right wing agenda with one of his early acts being to abandon the disputed protectionist measures and bring India into compliance with the WTO’s ruling.

India resisted US calls to remove protectionist measures while the government was composed of parties whose supporters benefited from such measures. However, following the BJP decisive ascendancy, India’s government represented different interests, trade policy shifted and the WTO dispute was resolved.

Leader change can also trigger the onset of disputes, as the 2002 election of Luiz Inácio Lula da Silva as the President of Brazil illustrates. “Lula”, as he is popularly known, was a large supporter and participant in labor unions and movements and a vehement critic of farm subsidies (XXXX). On February 6<sup>th</sup> 2003, Brazil requested that the WTO form a panel to investigate US cotton subsidies,

dispute 267. The panel found the US assistance to the cotton industry violated trade agreements and suggested remedial measures. The US failed to comply with these recommendations and it was only after the WTO authorized retaliatory tariffs in 2010 that the US re-entered negotiations.

These two cases are illustrative of general patterns. Leader change lead increases the likelihood of concessions by defendants. Leader turnover also increases the likelihood of dispute onset. Leaders represent the interests of their supporters. Trade policy provides a means through which a leader can enrich one segment of society at the expense of the rest and also at the expense of others overseas associated with the protected industry. Leaders want to assist the industries associated with their supporters and forsake other sectors of the economy. When leader turnover occurs, there is a shift in the interests that leaders want to represent. Political institutions affect the breadth of interests a leader wishes to assist and also the extent she wants to help each of these interests. The extent to which trade policy shifts with political change depends upon political institutions.

We present two analyses. First, we assess the onset of WTO disputes within a directed-dyad database of WTO members between 1995 and 2009. For ease of language, throughout nation A is referred to as the plaintiff or potential plaintiff and nation B, the defendant. Rare event logit analyses show WTO disputes are most likely to occur between economic heavy weights. Large coalition institutions, such as democracy, increase the likelihood of dispute involvement for both plaintiffs and defendants. The focus of this project is the impact of leader change. The analyses

show leader change in either A or B increases the chance of dispute onset and the impact of leader change on the likelihood of dispute onset is stronger in small coalition systems than in democracies.

The second set of analyses examines the effect of leader change on concessions in ongoing WTO disputes. Within 325 cases of WTO disputes between 1995 and 2009, the institutional context of leader change is an important determinant of concessions. Leader change in a non-democratic defendant during a WTO dispute greatly increases the chances of significant concessions by the defendant. Institutions play an important moderating role. In democratic defendant states, leader change increases concessions by the defendant but not to the same extent that is seen in non-democracies. In plaintiff states, the effect of leader change on dispute outcomes is weaker and only present in non-democracies.

This paper proceeds as follows: we describe the WTO dispute resolution mechanism. Next, a simple analysis shows how institutions shape the induced preferences of leaders with respect to different trade policies. This simple model predicts how leader change affects the onset and resolution of WTO disputes under different institutional settings. We then introduce our data sources and methods. The results section examines two questions: how leader change affects the onset of WTO disputes and how leader change affects the resolution of disputes. We conclude by discussing how these results contribute to the growing literature on the impact of leaders on international relations.

### **WTO Dispute Resolution Mechanism**

The World Trade Organization (WTO) was established in 1995 as a successor to the General Agreement on Tariffs and Trade (GATT), as an international organization designed to moderate and to regulate international trade agreements between member countries. Aside from serving as a forum for international trade negotiations, the WTO is charged with administering WTO agreements, monitoring national trade policies, and handling trade disputes between member nations.

The WTO handles trade disputes through the dispute settlement process of the organization. As of 1 June 2012, member countries have brought 438 cases through the dispute settlement process of the WTO. When a member country of the WTO feels as though another member state has taken some action or adopted a trade measure that is a violation of WTO trade agreements, that country can formally complain against the defendant country using the dispute settlement understanding of the WTO. The dispute settlement mechanism of the WTO is the only way by which the WTO formally monitors compliance of WTO trade agreements (Fukunaga 2006). The dispute settlement procedure is the responsibility of the Dispute Settlement Body (DSB), which consists of all WTO members.

Once a complaint has been formally issued, the consultation stage takes place. During this phase, the countries talk with each other to see if they can settle their differences and resolve the issue on their own. If consultations fail, then the dispute settlement process moves to the second stage. The complaining country can then ask for the establishment of a panel, appointed by the Dispute Settlement Body, to help evaluate the case and recommend rulings or courses of action. Both countries

have a chance to present their case in writing to the panel, and the panel may hear rebuttal arguments or even call on experts, should the case warrant it. The panel issues a report that is submitted to the two sides, and later to all WTO members. This report becomes a ruling, and then there is the option for an appeal from either side, if they see fit. Appellate body reports are circulated within 90 days of the appeal filing to ensure cohesiveness of the reports; over forty percent of WTO members have been involved in WTO appeals (Lockhart and Voon 2005). An issue with the appellate system arises because the losing defendant has a strong incentive to delay negative findings (Butler and Hauser 2000). This appellate system was created with the WTO, and did not exist under former GATT rules (Leitner and Lester 2008).

Once the final ruling has been issued, the defendant is required to follow the recommendations of the report and correct the trade issues that were the targets of the complaint. Compliance by the losing defendant is measured by a compliance panel, which observes which segments of the ruling were applied during the allotted measure of time (Kunoy 2007). Only if the defendant refuses or fails to comply with the ruling of the DSB does the WTO grant the complainant the right to issue sanctions. If the panel or appeal ruling favors the side of the defendant, then the case is closed. When a case is closed, there are very few, if any, concessions made by the defendant in the dispute.

At any stage during the dispute settlement process, the plaintiff may choose to withdraw his claims, or the defendant may choose to make concessions. Bilateral settlements are more likely to occur early on in the process, and to be suggestive of

the anticipated ruling and outcome of the formal dispute settlement procedure (Butler and Hauser 2000).

### **Leader Change, Institutions and Shifts in Trade Policy.**

Scholars increasingly examine the role of leaders in shaping relations between states. McGillivray and Smith (2008) argue leader turnover affects relations between nations, and that the effects of leader change are most substantial when leaders depend upon a relatively small coalition of supporters. They test their arguments in the context of trade flows (2004; 2008 ch 5), sovereign debt bond returns (2008 ch 6), and the duration of economic sanctions (McGillivray and Stam 2004).

A number of studies examine how leader turnover and other political changes affect relations between states using United Nations General Assembly voting as a measure of alignment between nations (Carroll, Leeds and Mattes 2012; Dreher and Jensen 2012; Hagan 1989). The Carroll et al. (2012) study is particularly pertinent to the current investigation as it focuses on the underlying coalition of societal support for a leader and whether it changes during a transition. They would argue, for instance, that succession within the Somoza dynasty, which ruled Nicaragua from 1936 until 1979, did not represent any fundamental change in the underlying societal winners and losers. Yet, the deposition of the Somozas by the Sandinista revolution led to a reorganization of the coalition who supported the ruling elite. In earlier work, Leeds, Mattes, and Vogel (2009) show turnover in the support coalition is an important determinant of alliance abrogation.

Leader change can affect the economic trajectory of a nation and its international security. Jones and Olken (2005) use the death of leaders by accident or natural causes as a quasi-experiment to investigate whether individual leaders account for differences in economic growth rates. Other scholars examine how leader change affects international credibility (Clare 2007; Guisinger and Smith 2002; Wolford 2007). Flores (2012) shows how leader change can hasten the cessation of international conflict. In the context of civil wars, Tiernay (2012) similarly investigates the contexts in which the replacement of an insurgency leader ends civil conflict.

Leader change affects relations between states, and this paper falls squarely within this genre by arguing that leader change affects the onset and resolution of WTO disputes. Although the literature has extensively addressed the escalation and resolution of disputes (Busch 2000; Busch and Reinhardt 2001; 2003, 2006; Guzman and Simmons 2002; Reinhardt 2001), which nations become involved in disputes (Davis and Bermeo 2009; Guzman and Simmons 2005; Horn et al. 1999; Reinhardt 1999) and the forum in which nations resolve their trade disagreements (Davis 2006; Busch 2007), to our knowledge, no-one has addressed how individual leaders and their coalition of supporters affect these decisions.

Political survival is about enriching supporters rather than doing what is best for the nation as a whole. Social welfare optimization might be desirable from a normative perspective, and economic theory tells us that free trade is social welfare improving for a small open economy. Benevolent leaders would make protectionism a moot point. Leaders with survival instincts enact policies that

optimize the welfare of their supporters (Grossman and Helpman 2005). Much of the literature focuses on how institutions affect the average level of protection (XXXX). There is a broad literature on how electoral rule and other institutional features of democracy affect policy formation (for instance, xxx; McGillivray 2004; Persson and Tabellini xxx). While these issues are relevant to our arguments, our primary focus is on how leader change causes a different set of interests to be represented through trade policies and how such shifts in priorities lead to the onset and resolution of WTO disputes.

Trade protection, subsidies and other forms of assistance to a particular industry enhance the welfare of those associated with that industry but harm the welfare of the rest of society who must pay higher prices for that good or pay additional taxes to finance the subsidies. To construct a simple model, suppose a nation's economy is divided into  $K$  sectors or industries; the terms sectors and industries are interchangeable. What is important is that individuals have factor specific endowment such that, at least in the short term, their welfare is tied to the profitability of a certain section of the economy. Trade policy affects this profitability.

Leaders set the level of protection and/or assistance for each industry. Let  $t=(t_1,t_2,\dots,t_K)$  represent assistance to each sector. Since political incentives are the focus of the model, we don't differentiate between different forms of protection or worry about whether subsidies or regulation are the more efficient form of assistance. The principal assumption is that protection is beneficial to those associated with a particular industry, but harmful to everyone else in society and to

those associated with that industry overseas. Our focus is on capturing the political incentives rather than explicitly modeling economic micro-foundations or trade flows.

The net benefits of trade policy for an individual associated with industry  $i$  is increasing in the assistance to industry  $i$  and decreasing in the level of assistance to other industries. We use a simple formalization to reflect these realities; specifically,

let  $u_i(t) = t_i - \delta \sum_{j=1}^K t_j^2$  be the net benefit to those in industry  $i$  for the trade policy  $t$ . As

assistance to industry  $i$  increases, individuals associated with  $i$  are better off: that is the  $t_i$  term. However, those in industry  $i$  are made worse off by assistance to other industries because they must pay higher prices for goods or pay more taxes for subsidies. These costs are reflected by the summation term. Protection harms society at an increasing marginal rate, which is reflected by the squared term.<sup>1</sup>

Economic differences between industries could be modeled through a different  $\delta$  for each industry. However, the introduction of such heterogeneity clouds the underlying political incentives without adding significant intuition so we work with a fully symmetric model.

Political competition is based on Bueno de Mesquita et al.'s (2003) concept of selectorate politics that assumes the primary objective of leaders is to survive in office, and to do so, leaders need to maintain the loyalty of their supporters. The ease with which leaders retain office and how best they do so depends upon the number of supporters a leader needs. Bueno de Mesquita et al. refer to this

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<sup>1</sup> Alternatively, we might have modeled this as a diminishing marginal return to protection.

minimum number of supporters as the winning coalition size,  $W$ . Some leaders, such as autocrats, need the support of small numbers of backers. These leaders best reward such a small group by targeting lavish benefits to them. As a result, policy in small coalition systems has an intense private goods focus with each autocrat using policy to buy support from his own particular group of cronies. When leaders change so too do policies. The new leader wants to intensely reward his supporters. He has little interest in retaining policies that reward people who supported his predecessor but who are not essential to his political survival. Leader change in a small coalition system can result in a radical shift in policy, and when the policies in question are related to trade, this can lead to the onset of new trade disputes and affect the resolution of ongoing disputes.

Democratic leaders need a large coalition of supporters to retain power. The policies of highly targeted rewards upon which autocrats rely work poorly for democrats because they don't have enough resources to lavish rewards on so many supporters. Instead their policies have a public goods focus that aims to enrich society in general rather than just one small group. Of course, democrats use trade policy to privilege certain groups at the expense of the rest of society and trading partners, and the nature of political competition shapes the relationship between political change and redistributive policies (McGillivray 2004). However, the public goods focus induced by dependence on a large coalition means redistribution is less intense in democracies than autocracies. Further, since democrats need larger coalitions, it is likely that there is substantial overlap in the interests represented between one leader and the next. These overlapping interests and less intense

redistribution mean that the shifts in trade policy that accompany leader change are less intense in a democracy than an autocracy.

To adapt the ideas of selectorate politics to the underlying protection/assistance framework, let  $w$  be the number of industry groups upon whom a leader relies upon for support. In a democracy, leaders need to satisfy members of many industrial groups; while an autocrats needs to enrich those associated with a smaller number of industries.

If unconstrained by treaties or the threat of retaliation, then a leader picks the trade policy that maximizes the welfare of her supporters. The initial step in the analysis is to derive the politically optimal policies under different institutional settings. Formally a leader wants to maximize the welfare of her supporters. If  $\omega$  is the set of industrial groups from which she draws support, then the politically optimal trade policy is  $t_i = \frac{1}{2w\delta}$  if industry  $i$  is a member of  $\omega$  and  $t_i=0$  for industries outside of the leader's support base.

Any protection for industries outside of  $\omega$  harms the welfare of a leader's supporters. Hence she has no incentive to assist such industries. With regards to protection each supportive industry, a leader faces mixed incentives. Increasing the assistance to industry  $i$  helps supporters in industry  $i$  but it also harms supporters associated with other industries. If the leader needed only narrow support, say from a single industry, then she would increase  $t_i$  until the marginal value of more protection (that is 1) equals the marginal cost of increased protection (which from the derivative of the  $-\delta \sum t_i^2$  is  $-2\delta t_i$ ). Such an autocrat would set  $t_k = \frac{1}{2\delta}$ . As the

number of industrial groups in a leaders coalition increases, supporters suffer the loss from protection in each supportive industry, as result the leader protects each industry less: specifically  $t_k = \frac{1}{2w\delta}$ .

Institutions impact trade policy. If unconstrained, then a leader wants assistance of  $t_k = \frac{1}{2w\delta}$  to each of the  $w$  industries from which she draws support.

The depth and breadth of protection differ across institutions. To illustrate suppose there are nine sectors in society,  $\delta=1/2$  and contrast the trade policies of democrats who needs support from 5 of 9 sectors with those of autocrats who needs support from only 1 of 9 sectors. Below we illustrate the preferred policies of representative democrats and autocrats.

	$t_1$	$t_2$	$t_3$	$t_4$	$t_5$	$t_6$	$t_7$	$t_8$	$t_9$
Democrat 1:	1/5	1/5	1/5	1/5	1/5	0	0	0	0
Democrat 2:	0	0	0	1/5	1/5	1/5	1/5	0	1/5
Autocrat 1:	1	0	0	0	0	0	0	0	0
Autocrat 2:	0	0	0	0	0	1	0	0	0
Autocrat 3:	0	0	0	1	0	0	0	0	0

Although only an example, the illustration above reveals how institutions affect the breadth versus the depth of trade policy. As the coalition size increases, political leaders want to assist a great number of industries, but the extent of that assistance diminishes. Of course, leaders don't set trade policy in a vacuum and they are constrained by treaties and policies of other nations. Further, it is time consuming and administratively costly to design and implement or to scrap assistance programs. So in reality few leaders immediately implement their

politically induced preferences for trade policy. But as a starting point, it is useful to know the types of policies for which leaders aim, even if they don't always get there.

The trade policies of autocrats and democrats differ. Leaders of large coalition systems have incentives to commit many small violations. In contrast, small coalition leaders have incentives to commit larger violations, but fewer of them. Whether breadth or depth factor is the dominant factor is an empirical question.

The examples above illustrate how the turnover of leaders changes the objectives of trade policy. As a simplifying assumption, suppose leaders' affinity with different industrial groups are uniformly distributed such that each sector is equally likely to be in a new leader's coalition. Hence, if a leader needs the support of  $w$  of the  $K$  sectors, then each industry has a  $w/K$  chance of being favored following any leader change.

The policy goals of democrat successors are more likely to be similar to those of his predecessors than is the case when coalitions are small. Specifically, if the predecessor wanted to protect industry  $i$ , then there is a  $w/K$  chance that her successor does too. The overlap between the policy goals of successive democrats is on average larger than the overlap between successive autocrats. The examples above illustrated this point. There is no overlap between the policy goals of the three autocrats. But the two sample democratic leaders shared a desire to assist industries 4 and 5. An increase in coalition size increases the overlap between the trade policy goals of successive leaders. On average, the shift in which industries are

avored and which are not is smaller following democratic leader change than autocratic leader change.

The consistency of trade policy goals across successive political leaders affects the onset and resolution of trade disputes. We turn to an examination of how leader change affects onset and resolution of disputes from the perspective of both plaintiffs and defendant.

### **WTO Disputes**

Although the WTO adjudicates trade disputes, it lacks the power and authority to enforce its ruling. Instead WTO rulings clarify the situation, stipulate whether policies violate agreements, the size of the damaged caused and identify the appropriate remedies including the appropriate size of retaliatory sanctions. Such rulings can be comprehensive and clarify which actions are appropriate and which are not. These rulings serve as the basis for bargaining between nations.

If the defendant is deemed to have broken WTO agreements and fails to comply with panel rulings, then the WTO can authorize retaliatory tariffs. The scale of these authorized retaliations shape the outcomes, but they do so through bargaining rather than by enforcement. The plaintiff is responsible for imposing tariffs. For instance, although in dispute 267 the WTO found in favor of Brazil, the US refused to make concessions or negotiate until Brazil threatened retaliatory sanctions. Defendant leaders with a strong desire to support a particular sector may well continue to bargain and delay the removal of the violation even in the face of retaliatory sanctions. Rosendorff (2005) argues the ability of leaders to delay provides flexibility that is important in sustaining long-term compliance with WTO

agreements. The WTO's influence lies in shaping the bargaining, but it is still inherently a bargaining process without enforcement. If leader change causes a shift in preferences over trade policy, then bargaining incentives shift and this affects the resolution and onset of disputes, as we now explore.

### **Resolution of ongoing WTO disputes.**

Suppose there is an ongoing dispute between plaintiff A and defendant B. To avoid cumbersome language we label the initial leaders in the dispute as A1 and B1 and consider what happens if leader change occurs, with the successors being labeled A2 and B2. If the defendant leader changes from B1 to B2, then nation B becomes more likely to make concession. Suppose the dispute relates to industry *i*. Defendant leader B1 wanted to help industry *i*. It was for this reason that she disputed the plaintiff's claims of harm rather than acquiesce in the first place. The time and effort a subsequent leader puts into bargaining depends upon his desire to assist industry *i*. If B2 also wants to privilege *i*, then he will bargain hard. If not, then he is likely to concede.

Institutions affect the likelihood that following leader turnover B2 continues to bargain hard rather than acquiesce. As derived above, the chance that successor B2 shares the same desire to privilege industry *i* as his predecessor, B1, increases in winning coalition size (specifically,  $w/K$ ). Leader change in a defendant nation increases the likelihood of concessions by the defendant. But such leader change induced concessions become less likely as coalition size increases. Hence, we predict that leader change in the defendant state during an ongoing dispute increases

concessions by the defendant and the impact of defendant leader change is greater in small coalition systems than in large coalition systems.

With respect to the plaintiff, leader change has a similar effect on bargaining incentives. Leaders bear the administrative costs of taking a case to the WTO only if their supporters would benefit from a change in the defendant's policy. The extent to which successor leader A2 continues to bargain hard depends upon whether his interests match those of A1. If his supporters no longer include the industry in question, then he reduces bargaining efforts and so, on average, extracts fewer concessions. Again, large coalition systems moderate the effect of leader change.

We predict changes in the political interests represented following leader change shape concessions in ongoing WTO disputes. Leader change in defendant nations makes concessions more likely. In contrast, leader turnover in the plaintiff state reduces concessions by the defendant. However, in the case of both plaintiffs and defendants, increases in winning coalition size diminish the impact of leader change on concessions.

### **Onset of WTO Disputes**

Leader turnover shifts the interests that leaders represent and this create the possibility of conflictual trade relations. The relationship between leader change and the onset of disputes is present in both plaintiffs and defendants. Suppose leader A1 is replaced by leader A2. The new leader cares about a potentially different set of industries to his predecessor. Consider a specific industry  $i$  and suppose that nation B has discriminatory policies that harmed those associated with industry  $i$  in other nations. If leader A1 cared about assisting industry  $i$ , then she

would want B's discriminatory measures changed. That she did not launch a complaint indicated that either B's policies were not sufficiently discriminatory to make initiation of a WTO dispute worthwhile or that her politically induced preferences over trade did not include wanting to favor industry i.

Leader turnover leads to different interests being represented. In the setting where protesting B's policies would be unlikely to gain sufficient rewards, a change in leadership in A has no effect. However, if A1 did not protest B's policies because she did not care about industry i, then a leader change in A that brings a more pro-industry i leader to office can precipitate a dispute.

Leader change in a potential plaintiff increases the chance of dispute escalation. A similar logic pertains to the case of defendants. If leader B2 takes over from B1, then he has incentives to shift trade policy to reflect the interests of his coalition. If industry i is part of his coalition, but was not part of B1's coalition, then moves to increase assistance to industry i might precipitate another nation to launch a WTO complaint.

Institutions moderate the induced trade preferences of leaders. Democrats want modest assistance for a wide range of industries. Further, successors are likely to favor supporting many of the same industries that their predecessors did. Majoritarian democratic institutions extenuate this overlap of interests yet further as both parties appeal to marginal or swing districts (Conybeare 1984, 1991; McGillivray and Smith 1997). Democratic leader change induces a modest change with respect to the industries a leader seeks to protect and the extent to which the leader wants to protect them is modest. Autocrats, in contrast, want to assist a small

set of industries, but to a greater degree. When leader change occurs, there is often a complete switch in the set of favored industries and the new leader wants to assist his favored industrial sectors extensively. The more extreme shift in industrial preferences for autocratic leader compared to democratic leaders implies that leader change is more likely to trigger WTO disputes in small rather than large winning coalition systems.

We predict leader change to increase the likelihood of WTO dispute onset and increase the likelihood of defendant concessions in ongoing disputes. Institutions moderate these effects, with the impact of leader turnover being greater in small coalition systems than in democracies. Next we describe our data and methods.

### **Data and Methods**

The empirical tests require data on WTO disputes, leadership data and political and economic data. Building on Reinhardt and Busch (2003), we code 325 WTO disputes initiated between 1995 and 2009. Reinhardt and Busch examine GATT and WTO disputes between 1980 and 2000. We extend their data to look at WTO disputes initiated through the end of 2009. Following Hudec (1993), Busch and Reinhardt recorded complaints in which formal WTO proceedings were explicitly invoked, typically through a formal request for consultations. In addition, they eliminated redundancy in the list of cases to avoid double counting, as did Horn, Nordstrom and Mavroidis (1999). This elimination of certain cases means that if the first and second complaint of the same outstanding issue were filed as separate disputes, such as DS 16 and DS 27 as noted by Busch and Reinhardt, they are

counted as a singular dispute in the data. In addition, if there are separate formal dispute numbers for provisional and final antidumping determinations, the complaints are merged into a single dispute and recorded as such.

In their data set, Busch and Reinhardt capture a variety of information, including the WTO Dispute number, the names of each the plaintiff, defendant, and respective country codes, and the official title of the dispute. In addition, they code the level of concessions made by the defendant (no concessions, partial concessions or substantial concessions), the ruling issuance and direction by the panel, and a multitude of dummy variables related to the case. These dummy variables include whether or not a ruling body was established, if the case was agriculturally based, if the dispute was multilateral, if discriminatory measures were the target of the complaint, whether a ruling was issued and whether the case was deemed politically “sensitive” by definition of “biosafety, environmental protection, cultural preservation, or national security.”

Following their guidelines with respect to duplicate cases and the recording of cases that were formally brought to the DSB through the rules of the WTO, we updated Busch and Reinhardt’s data to include an additional 172 disputes through 2009. These extended data provide the primary data in our study. We report summary statistics for the disputes in Table A1 in the appendix.

Our analyses examine both the onset and resolution of WTO disputes. To examine the onset of disputes we compile a dataset of directed dyads of WTO member states for each year using Bennett and Stam’s (2000) EUGENE software program. In particular, for each year that nation A was a member of the WTO, we

matched it against every other member of the WTO (coded nation B). The dependent variable, Dispute Onset, is a dummy variable coded 1 if nation A initiates a WTO dispute against nation B in the particular calendar year.

Our basic data contain 222,462 directed-dyad-year observations. This is less than all the possible dyadic matching of the 157 WTO members for each year between 1995 and 2009, for a number of reasons. Beyond the standard data availability limits, not all WTO members entered at the same time. For instance, China joined the WTO in 2001. Therefore, we exclude all dyads involving China prior to 2001.<sup>2</sup>

The European Union (EU) has become an important participant in WTO disputes (Rogoveanu 2010). Although individual EU member states join the WTO, the EU acts on behalf of all its members. In our dispute data the EU is coded as the plaintiff in 55 WTO disputes and as the defendant in 55 WTO disputes. There are no instances of an individual EU member state acting as the plaintiff in a dispute. However, cases occur when an individual EU member state is the defendant. For instance in dispute 173, US accused France of 140 million French francs of assistance to a French firm to develop a new flight management system. In the dispute onset data, we treat the EU as a WTO member state. The EU is treated as a potential plaintiff with every other (non-EU) WTO member and the individual EU states are removed for the data as potential plaintiffs. However, since individual EU states are sometimes defendants, we include both the EU and its constituent members as potential defendants in dyads with every other WTO member. When

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<sup>2</sup> We coded WTO membership by year of entry independent of when during the year a nation joined. China joined the WTO in 11<sup>th</sup> December 2001.

the EU is included in analyses, it is treated as if it were a single nation with its GDP, population and trade taken as the sum of its constituent members. Politically we assume it is a large coalition democracy, as defined below. Further, we assume there is no leader change within the EU. Fortunately, the analyses are not sensitive to the inclusion/exclusion of the EU. To demonstrate this robustness some analyses exclude all cases involving the EU as either a plaintiff or defendant.

WTO disputes are rare within the set of all possible directed dyads and occur in only about 0.1% of observations. Therefore, we use Tomz, King and Langche (2003), stata implementation of rare event logit, which is available at (<http://www.stanford.edu/~tomz/software/software.shtml> accessed 2/20/2012).

Our second set of analyses examines the resolution of WTO disputes with individual disputes being the unit of analysis. The dependent variable is the size of concessions granted (none, partial or substantial) and the method is ordered probit. The theory highlights the importance of leader change, political institutions and economic conditions, and it is to these variables that we now turn.

Leader change is taken from the Archigos data (Goemans, Gleditsch, and Chiozza 2009). We updated these data through 2011. These data record the date of entry and exit of individual national leaders. To assess the impact of leader change on WTO dispute onset we create a leader change variable for both the potential plaintiff (A) and the potential defendant (B). This variable is coded as one if any leader change occurs in either the year of the observation or in the previous year.

We hypothesize leader change affects the resolution of a dispute. To test this prediction, we code whether leader change occurs during the course of a dispute.

Unfortunately, the duration of disputes differs and lengthy disputes offer greater opportunity for leader change. If the outcome of a dispute is related to its duration, then our design risks erroneously attributing the outcome consequences of a long dispute to leader change. To rule this out, in the appendix, we present a parallel set of analyses looking at whether leader change occurred within two years of dispute onset. Both approaches yield similar results.

Our principle measure of political institutions is winning coalition sizes, *WA* and *WB*. This measure by Bueno de Mesquita et al. (2003) is a five-point scale using data from Polity IV (Marshall, Jaggers and Gurr 2002) and Arthur Banks' (2001) data. The index of coalition size contains four components that reflect the inclusiveness or non-inclusiveness of the system: *REGTYPE*, *XRCOMP*, *XROPEN*, and *PARCOMP*. The variable *REGTYPE* refers to regime type and is coded as 2 for military regimes and coded as 3 for military/civilian regimes. Since coalitions in military regimes are formed around a small group of military elites, a military regime is indicative of a small coalition. *W* receives one point if *REGTYPE* is not coded as 2 or 3.

The variable *XRCOMP* measures the competitiveness of executive recruitment. This variable is coded as one when the chief executive is selected by heredity or in rigged, unopposed elections. Such rules are indicative of leaders being dependent upon only a small number of supporters. In contrast, higher values (2 or 3) of *XRCOMP* indicate a dependence on a greater number of supporters. When *XRCOMP* equals 2 or 3, *W* receives an additional point.

The openness of executive recruitment, *XROPEN*, contributes an additional point to *W* if the executive is recruited in a more open setting than heredity (that is, the variable's value is greater than 2). Executives who are recruited in an open political process are more likely to depend on a larger coalition than are those recruited through heredity or through the military.

Finally, one more point can be contributed to the index of *W* if *PARCOMP*, competitiveness of participation, is coded as a 5, meaning that “there are relatively stable and enduring political groups which regularly compete for political influence at the national level” (Polity II, p. 18). This variable is used to indicate a larger coalition on the supposition that stable and enduring political groups would not persist unless they believed they had an opportunity to influence incumbent leaders; that is, they have a possibility of being part of a winning coalition. The indicator of *W* is then divided by 4 to create a five-point scale for *W* taking the possible values 0, .25, .5, .75, and 1.

As robustness checks, institutions are coded in several other ways. Rather than consider winning coalition size on its five-point scale, we create dummy variables for the largest coalition size ( $WA=1$  for plaintiffs and  $WB=1$  for defendants). Additionally we consider Polity's Democracy – Autocracy scale. This latter measure is normalized to also take values between 0 and 1 by adding 10 points to the difference between Polity's Democracy-Autocracy score and dividing the resultant 21-point scale total by 20. As a final robustness check we examine a dummy variable coded as 1 if the normalized Democracy-Autocracy scale is greater than 0.8.

Economic data on population size, GDP and trade are obtained from the World Bank's World Development Indicators. Additional variables including bilateral import data, distance and colonial connections, and alliance portfolio measures (Tau-B, see Bueno de Mesquita 1981) were obtained from EUGENE. The analyses include the year of dispute initiation to control for temporal trends, and, in the case of dispute resolution analyses, the logarithm of dispute length.

## **Results**

The analyses examine the onset and resolution of WTO disputes. Leadership turnover affects both.

### **Onset of WTO Disputes**

WTO trade disputes typically involve nations with large economies. Democracies are disproportionately likely to become involved in disputes, although this effect is slightly offset when both nations are democratic. Leader turnover in both potential plaintiff and potential defendant increases the risk of dispute onset, although this effect is much diminished in democracies.

Table 1 shows four rare event logit models that assess the onset of WTO disputes within directed dyads. The number of directed dyads varies between 218,826 in model 1 to 69,6562 in model 4 depending on whether cases involving the EU are included or excluded, and the number of independent variables included. Given the scarcity of disputes within these enormous datasets, we use the rare event correction to the standard logit model recommended by Tomz, King and Langche (2003). We report robust standard errors based on clustering by dyad.

Model 1 examines directed dyads including the EU. Model 2 excludes dyads involving the EU. Models 3 and 4 add additional control variables for trade as a percentage of GDP, economic growth rates, bilateral import levels, contiguity, colonial relationships, and security alignment based on alliance portfolio allocations (Horn et al. 1999). Since of these additional controls only the level of bilateral imports by the plaintiff exhibits any significant relation with the onset of disputes and the inclusion of these additional controls leaves the effect of our core variables unchanged, we do not discuss them in detail.

Trade disputes occur between economically powerful nations. Across all the models in table 1, a large economy is the most important determinant of dispute involvement. This is true for both the potential plaintiff (A) and the potential defendant (B). Within all models, the coefficient estimates on the log(GDP) variables are highly significant. The models also include population measures. The positive coefficient estimates indicate that large nations are more likely to become embroiled in WTO disputes. The significant negative coefficient estimate on the year variable indicates that disputes become less likely over time. This is perhaps unsurprising. As seen in the case of India in dispute 90, nations can have policies that violate WTO rules that were conceived prior to agreeing to WTO rules. Overtime other nations find political incentives to protest these violations. As they do so, the initial stock of violations diminishes.

Trade disputes, at least those under the auspices of the WTO, involve economic heavy weights (Guzman and Simmons 2005; Davis and Bermeo 2009). However, WTO disputes remain relatively rare. For instance, even evaluated at the

95th percentile for all economic variables, model 1 predicts a baseline probability of dispute onset of only 0.0019.

Democracy increases the likelihood of WTO dispute involvement. The positive coefficient estimates on the winning coalition size for both nations A and B mean democracies are more likely to be both plaintiffs and defendants in WTO disputes. In model 1, in moving from least democratic ( $WA=0$ ) to most democratic ( $WA=1$ ) plaintiff, the probability of dispute onset increases from 0.0019 to .032. In absolute terms, dispute onset is unlikely under all configurations. As is common practice when, for example, describing risk factors for a rare disease, it is more useful to discuss the impact of political variables in terms of their relative impact rather than in terms of absolute probabilities. In model 1, moving from an autocratic to a fully democratic plaintiff makes dispute onset nearly 16 times more likely. Increasing the democratic nature of the defendant approximately doubles the likelihood of dispute onset.

The democratic peace literature suggests democracies don't fight each other, although they do fight other states (Russett 1993). A parallel result does not hold for WTO disputes. The negative coefficient on the mutual democracy variable ( $WA=1$  and  $WB=1$ ) suggests that two democracies reduce the onset of WTO disputes. However, this effect is smaller than the monadic effects of democracy in A (16 fold increase) and B (2 fold increase). Overall a pair of democracies is about 22 times more likely to become involved in a trade dispute than would a pair of economically comparable autocracies.

Economic size and democratic political institutions increase the likelihood of dispute onset. Against this background, we now turn to our central question of how leader change affects dispute onset. Leader change in non-democracies increases the chance of WTO dispute onset. The leader change variables are coded 1 if any leader change occurs in the observation year or the year prior to the observation. For both the plaintiff (A) and the defendant (B), the coefficient estimates on the leader change variables are positive and significant. The coefficient estimates in model 1 indicate that leader change in a non-democratic plaintiff state generates an approximately 7-fold increase in the risk of dispute onset. Leader change in a non-democratic defendant state (B) increases the risk of dispute onset about 3-fold.

Within democracies, leader change has little impact on dispute initiation. In defendant states the sum of the coefficient estimates on leader change and its interaction with coalition size is indistinguishable from zero. In large winning coalition systems, leader turnover for the defendant states does not increase the risk of dispute onset. In democratic plaintiff states, leader turnover actually appears to slightly decrease the risk of WTO dispute onset.

These patterns persist across all the models in table 1. The results are robust to the inclusion or exclusion of the EU and to the inclusion of additional control variables. Within non-democratic states, leader change in the plaintiff or the defendant increases the risk of WTO dispute onset. Yet within democratic states, leader change has either no effect or a weak negative impact. As anticipated by the theory, leader change increases the risk of WTO dispute onset. Further, the impact of leader change is ameliorated in large coalition systems.

Table A2 in the appendix provides further robustness tests by extending the definition of leader change to include the two previous years instead of just the single previous year. Table A2 also tests alternative institutional definitions looking at a dichotomous winning coalition variable and institutions coded on the basis of Polity's Democracy-Autocracy score. These produce similar results. Leader change increases the likelihood of WTO dispute onset and the effect is largest in non-democratic nations. Leader turnover not only affects dispute onset, it also affects the resolution of ongoing disputes and it is to this question that we now turn.

### **Resolution of WTO disputes**

Leader change, especially in non-democratic defendant states, affects the resolution of WTO disputes. We start by showing the effect of leader change on dispute resolution with simple contingency tables. Following this we present ordered probit analyses. Although our focus is on the role of leader change, we examine the influence of a number of other variables, particularly since their impact differs from those reported in Busch and Reinhardt's (2003) earlier study.

Table 2 shows that on average defendants make larger concessions if they are democratic or if they experience leader change. The effect of leader change is particularly strong in non-democratic systems. Table 2 divides WTO disputes according to whether the defendant has the largest coalition size ( $WB=1$ ) or not, and by whether or not the defendant nation experienced leader change between the initiation and resolution of the dispute. On average democratic defendant states are more likely to make greater concessions than non-democratic ones. For instance, 40% of non-democracies make no concessions. In contrast, only 28% of

democracies make no concessions. Democracies are more likely to make substantial concessions than non-democracies (55% vs. 45%).

If leaders change, then so too do the interests represented at trade disputes. A new leader is less likely to be concerned with maintaining the policies that privileged the previous leader's supporters. As such, the new leader is more likely to make significant concessions. The data provide support for this argument. If leader change occurs in the defendant state, then substantial concessions become more likely. This effect of leader change is present in both democratic and non-democratic defendants, but the effect is stronger in the non-democracies. In non-democratic defendants, the absence of leader change results in only 29% of disputes ending in substantial concessions. Yet should the defendant leader change during an ongoing dispute, then this figure jumps to 72%.

Within large coalition systems (WB=1), defendant leader change also increases the likelihood of concessions, although to a smaller extent than in non-democracies. Democratic leader change results in substantial concessions in 72% of cases. In the absence of leader change democratic defendants make substantial concessions in 50% of cases. Institutions and leader change in the defendant state affect WTO dispute outcomes.

Institutions and leader change in plaintiff states also affect dispute outcomes; however, the impact of leader change is weaker than that seen in defendant states. Table 3 focuses on characteristics of the plaintiff state, but is otherwise parallel in structure to table 2. Democratic plaintiffs tend to extract more concessions than

non-democracies. They achieve substantial concessions in 60% of cases, while non-democratic plaintiffs achieve this goal in only 40% of cases.

When the plaintiff nation is democratic, leader change in the plaintiff nation has little impact on concessions. Substantial concessions are obtained by 58% of democratic plaintiffs in the absence of leader change and by 68% of democratic plaintiffs following leader change. These differences are not statistically significant. In contrast, leader change in non-democratic plaintiff states significantly increases the likelihood of substantial concessions from 26% to 62%. This latter result is contrary to theoretical expectations. The theory predicts that leader change in non-democratic plaintiffs should reduce the leader's desire to push for concessions. Yet the data suggests that these successor leaders are on average more successful at obtaining concessions.<sup>3</sup> We now turn to more systematic analyses of dispute outcomes.

Table 4 shows a series of ordered probit models. The dependent variable in each model is the level of concessions by the defendant. Our primary focus is how leader change and political institutions affect dispute outcomes. The leader change variable is a dummy variable that is coded as one if leader change occurs between the initiation and termination of a WTO dispute.

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<sup>3</sup> One partial explanation for this finding is the distribution of defendant regime types. As we have already seen, democratic defendants are more likely to make substantial concessions than autocratic ones, and democratic defendants are not evenly distributed across the cases. Of the 85 cases of non-democratic plaintiffs where leader change does not occur, the defendant is democratic in 55% of the cases. In contrast, in the 55 cases where leader change occurs in a non-democratic plaintiff, the defendant is democratic in 76% of the cases.

Each of the analyses in table 4 suggests that democratic defendants are significantly more likely to make more concessions than non-democratic defendants, about 22% more likely. The coefficient estimate for the Democracy B variable is positive and significant in all models. There is less evidence that the plaintiff's regime type matters. Although the coefficient estimates on the Democracy A variable are positive in each model, suggesting democratic plaintiffs gain greater concessions, the magnitude of these estimates are smaller than those on the defendant's regime type and the estimates are generally not statistically significant.

Leader change affects the resolution of WTO disputes. However, context matters. The effect of leader change is largest in non-democratic defendant states. The coefficient estimates for the Leader Change B variable are positive and highly significant. This result indicates that if leader change occurs in a non-democratic defendant after the initiation of the dispute, then the defendant is about 37% more likely to make substantial concessions. Leader change matters in democratic defendants too, with leader change increasing the likelihood of substantial concessions by about 26%.<sup>4</sup>

Leader change also matters in the plaintiff state, although to a lesser extent. The coefficient estimates on the Leader Change A variables are positive across each model specification, but they are not always significant. Further, the coefficient estimates are smaller in magnitude than the comparable estimates for defendant leader change. The coefficient estimates for the interaction of leader change A and

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<sup>4</sup> These estimates are based on model 5 and obtained using Clarify (King et al. 2000) with the continuous variables set to their mean values and the WA=0 and no leader change in nation A.

democracy A are negative. Joint hypothesis tests on the sum of the Leader Change A variable and its interaction with Democracy A indicate that, statistically, leader change in a democratic plaintiff has no effect on outcomes.

We now turn to the impact of other factors. Models 5 and 8 offer some evidence that wealthy plaintiffs (measured in terms of per capita GDP) tend to obtain greater concessions. Model 8 also suggests that wealthy defendants make greater concessions. However, these effects are relatively small. For instance, a one standard deviation increase in plaintiff wealth increases the likelihood of a substantial concession by about 7%, an effect about one third of the impact of institutional change.

Models 6, 7 and 8 include variables corresponding to whether a panel was established and how it ruled. We find substantial differences compared to prior estimates by Busch and Reinhardt (2003). In their analysis of WTO cases between 1995 and 2000, they found a stronger positive relationship between panel formation and concessions than we estimated. They also found a stronger negative relationship between a ruling for the defendant and the size of concessions. Yet, models 6, 7 and 8 find no statistical support for this finding. The differences between their findings and ours lie in the changed sample. If we restrict our sample to pre-2001 (the sample examined by Busch and Reinhardt), then we obtain very similar results to their study.

We conjecture that the evolution of the WTO dispute mechanism explains the differences in how rulings affect outcomes. Table A1 in the appendix provides summary statistics of the crises divided into pre and post 2000. Rulings differ

substantially before and after 2000. For instance, in Busch and Reinhardt's sample only about 27% of cases resulted in a ruling for the plaintiff. Yet, in subsequent disputes, this figure has jumped to 69%. In contrast, mixed rulings now occur much less frequently. Since its origins, the WTO appears to have become more decisive in its ruling and more likely to rule for the plaintiff. At the same time, its rulings appear to have less effect on the outcome of disputes, as demonstrated by a comparison of our results with those of Busch and Reinhardt.

As the WTO has become more decisive in its rulings, it is also reasonable to presume that its decisions have become more predictable. If disputants can reliably predict panel rulings, then it is likely that they considered such factors before initiating the dispute process (Butler and Hauser 2000). As such, the actual rulings are likely to have relatively little impact because states endogenized the likely ruling in the first place.

Leader change affects WTO dispute resolutions. Leader changes in defendant states increase concessions by the defendant. This observation is particularly true when the defendant is non-democratic. Leader change in the plaintiff state also affects concessions, although to a lesser extent than leader change in the defendant. The analyses in tables 2, 3 and 4 examine leader change during the course of a WTO dispute. Yet WTO disputes last different amounts of time. The median duration of WTO disputes is 566 days, with a mean of 829 days. Ideally we would like to study the impact of leader turnover at different stages of the dispute and so be able to contrast the impact of political change during consultation periods with that after rulings etc... Unfortunately, the sample is too small to support such analyses.

Driven by concerns about the differing lengths of dispute, we present additional analyses in the appendix. Obviously leader change is far more likely to occur in a dispute that lasts five years compared to a dispute that lasts only one year. If outcomes are related to the length of a dispute, then leader change might be erroneously correlated with outcomes. As a robustness check against this possibility, in the appendix we reexamine the analyses in tables 2, 3 and 4, but focusing only on leader change within two years of the initiation of the dispute. These results, reported in tables A2, A3 and A4, yield similar substantive results. Leader change, particularly in defendant states, is an important determinant of WTO dispute outcomes.

## **Conclusions**

Disputes in the WTO typically occur between two nations with large economies. Such nations conduct substantial trade, have more vested in the international system and have the resource, influence and clout to make using the WTO dispute mechanism worthwhile. Democratic states are also more likely than autocrats to turn to the WTO's rule based system. Against this backdrop, we examine the importance of individual leaders and domestic political institutions in shaping the occurrence and resolution of trade disputes.

International relations scholars are increasingly sensitive to the importance of individual leaders and the context in which they hold office (for a recent review see Bueno de Mesquita and Smith 2012). This paper falls squarely within this genre

by showing that domestic political institutions and leader change influence the likelihood of trade dispute onset and the outcome of ongoing disputes.

We argue that when leader change occurs, there is a shift in the set of interests represented in trade policy. Such a shift in priorities leads to new rows and differences between states and reduced salience for ongoing disputes.

Redistribution is more intense in autocracies than in democracies. An autocrat rules by targeting intense rewards to a small coalition of supporters. Hence when a new autocrat takes office, a small, but often different, group finds itself privileged.

Autocratic trade policy is narrow and intense and, most important for this project, volatile when leader change occurs. Democrats want to reward their supporters too. However their supporters are so much more numerous that redistribution tends to be mild and directed towards large, often centralist, groups. Leader change in democracies results in coalitional changes, but there is typically substantial overlap between the supporters of one leader and the next. Furthermore redistributive policies tend to be moderate. The shifts in trade policy associated with democratic leader change tend to be mild and moderate and so less likely to trigger new disputes or affect ongoing disputes.

Our analyses of dispute onset and resolution support these predictions. Leader change is an important aspect in identifying both when and between whom the onset of trade disputes is likely to occur. Within non-democratic states, leader change in either the plaintiff or the defendant increases the risk of WTO disputes occurring. Yet, leader change has a smaller effect in democracies.

The resolution of disputes is observed through the level of concessions made by the defendant. Absent leader change, democracies tend to make concessions more often than non-democracies. However, the effect of leader change is particularly strong in non-democracies. Conditional on a dispute already occurring, a leader change in the defendant has a substantial effect on the outcome of the dispute.

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Table 1: The Onset of WTO Disputes, 1995-2009.

Rare Event Logit	WTO Disputes All Dyads	WTO Disputes Exclude EU	WTO Disputes All Dyads	WTO Disputes All Dyads
Model	1	2	3	4
Plaintiff Winning	2.804	3.178	3.536	3.066
Coalition (WA)	(0.734)**	(0.686)**	(0.728)**	(0.905)**
Defendant Winning	0.592	0.608	0.852	1.426
Coalition (WB)	(0.611)	(0.616)	(0.693)	(1.325)
log(GDP)A	0.539	0.512	0.495	-0.112
	(0.070)**	(0.068)**	(0.066)**	(0.204)
Log(GDP)B	0.637	0.618	0.571	0.450
	(0.084)**	(0.083)**	(0.083)**	(0.219)*
Log(Population)A	0.170	0.153	0.254	0.415
	(0.070)*	(0.076)*	(0.082)**	(0.123)**
Log(Population)B	0.374	0.338	0.329	0.423
	(0.075)**	(0.090)**	(0.083)**	(0.137)**
Year	-0.135	-0.118	-0.129	-0.173
	(0.017)**	(0.019)**	(0.021)**	(0.063)**
Leader Change A	1.950	2.089	2.248	1.567
	(0.672)**	(0.600)**	(0.617)**	(1.212)
WA* Leader Change A	-2.517	-2.686	-2.968	-2.361
	(0.783)**	(0.709)**	(0.732)**	(1.428)
Leader Change B	1.091	1.131	1.403	2.133
	(0.516)*	(0.514)*	(0.558)*	(0.898)*
WB* Leader Change B	-1.196	-1.239	-1.552	-2.582
	(0.570)*	(0.578)*	(0.627)*	(1.031)*
Mutual Democracy (WA=1 and WB=1)	-0.223	-0.219	-0.089	0.255
	(0.257)	(0.258)	(0.269)	(0.324)
Trade/GDP A		-0.002	0.001	-0.005
		(0.002)	(0.002)	(0.004)
Trade/GDP B		-0.004	-0.004	-0.006
		(0.004)	(0.004)	(0.006)
Economic Growth A		0.011	0.003	0.040
		(0.025)	(0.025)	(0.052)
Economic Growth B		-0.014	-0.025	0.033
		(0.027)	(0.030)	(0.048)
Log(imports into A from B)				0.652
				(0.203)**
Log(imports into B from A)				0.015
				(0.220)
Contiguity				-0.058
				(0.096)
Colonial Connection				0.098
				(0.132)
Security Alignment (Tau-B)				0.431
				(0.325)
Constant	220.951	188.828	210.625	306.805
	(34.631)**	(38.110)**	(41.510)**	(124.608)*
N	218,826	199,692	197,874	69,656

\* $p < 0.05$ ; \*\*  $p < 0.01$  Robust standard errors in parentheses

Table 2: Concessions, Institutions and Leader Change in the Defendant Nation  
(Leader change at any time during the crisis)

Concession Size and Leader Change in Defendant	Non-Democratic Defendant (WB<1)		Democratic Defendant (WB=1)	
	No Leader Change	Leader Change	No Leader Change	Leader Change
No Concessions	40 (54%)	9 (19%)	53 (34%)	5 (10%)
Partial Concessions	13 (17%)	4 (9%)	25 (16%)	9 (18%)
Substantial Concessions	22 (29%)	33 (72%)	79 (50%)	35 (72%)
	75	46	157	49

Table 3: Concessions, Institutions and Leader Change in the Plaintiff Nation  
(Leader change at any time during the dispute)

Concession Size and Leader Change in Plaintiff	Non-Democratic Plaintiff WA<1		Democratic Plaintiff (WA=1)	
	No Leader Change	Leader Change	No Leader Change	Leader Change
No Concessions	50 (59%)	5 (9%)	45 (31%)	7 (17%)
Partial Concessions	13 (15%)	16 (29%)	16 (11%)	6 (15%)
Substantial Concessions	22 (26%)	34 (62%)	86 (58%)	27 (68%)
	85	55	146	41

Table 4: The Impact of Institutions and Leader Change on WTO Outcomes  
(Leader change at any time during the dispute)

Ordered Probit. Model	Defendant Concessions			
	5	6	7	8
Democracy A (WA=1)	0.373 (0.257)	0.367 (0.266)	0.343 (0.269)	0.446 (0.323)
Leader Change A	0.773 (0.243)**	0.524 (0.253)*	0.496 (0.256)	0.791 (0.295)**
Leader Change A* (WA=1)	-0.788 (0.321)*	-0.571 (0.332)	-0.585 (0.339)	-0.742 (0.422)
Democracy B (WB=1)	0.707 (0.278)*	0.589 (0.288)*	0.600 (0.296)*	0.950 (0.357)**
Leader Change B	1.010 (0.261)**	0.970 (0.265)**	0.906 (0.270)**	0.862 (0.314)**
Leader Change B*(WB=1)	-0.459 (0.328)	-0.369 (0.334)	-0.294 (0.340)	-0.168 (0.421)
Log(GDP per capita)A	0.217 (0.102)*	0.165 (0.105)	0.193 (0.108)	0.266 (0.127)*
Log(GDP per capita)B	-0.169 (0.112)	-0.201 (0.115)	-0.168 (0.118)	-0.352 (0.156)*
Log(GDP)A	-0.051 (0.047)	-0.052 (0.048)	-0.059 (0.050)	-0.078 (0.062)
Log(GDP)B	0.014 (0.049)	0.032 (0.051)	0.001 (0.053)	0.057 (0.065)
Log(Dispute length)	0.149 (0.072)*	0.084 (0.088)	0.078 (0.090)	0.042 (0.113)
Panel Established		0.502 (0.203)*	0.192 (0.246)	0.103 (0.308)
Ruling for Plaintiff		-0.683 (0.165)**	-0.564 (0.177)**	-0.306 (0.223)
Mixed Ruling		-0.776 (0.339)*	-0.614 (0.345)	-0.752 (0.428)
Ruling for Defendant		0.022 (0.287)	0.074 (0.292)	0.144 (0.391)
Agricultural Case			-0.150 (0.166)	-0.331 (0.216)
Multilateral Case			0.484 (0.232)*	0.554 (0.285)
Discriminatory Measure			0.153 (0.151)	0.283 (0.196)
“Sensitive Case”			-0.414 (0.269)	-0.082 (0.351)
Threshold 1	0.812 (1.586)	-0.116 (1.665)	-0.440 (1.716)	-0.254 (1.970)
Threshold 2	1.293 (1.587)	0.401 (1.665)	0.087 (1.717)	0.273 (1.970)
Observations	325	325	325	215

\*  $p < 0.05$ ; \*\*  $p < 0.01$

## Appendix

Table A1: Summary Statistics of WTO Disputes

Variable	All WTO Dispute			Pre-2001 WTO Disputes			Post-2000 WTO Disputes		
	Obs.	Mean	S.D.	Obs.	Mean	S.D.	Obs.	Mean	S.D.
Democracy A (WA=1)	327	0.57	0.50	154	0.71	0.46	173	0.45	0.50
Leader Change A	327	0.29	0.46	154	0.26	0.44	173	0.32	0.47
Democracy B (WB=1)	327	0.63	0.48	154	0.65	0.48	173	0.61	0.49
Leader Change B	327	0.29	0.45	154	0.35	0.48	173	0.24	0.43
Log(GDP per capita)A	326	9.13	1.28	153	9.38	1.24	173	8.92	1.28
Log(GDP per capita)B	326	9.26	1.28	154	9.21	1.32	172	9.31	1.23
Log(GDP)A	326	27.64	2.14	153	28.04	2.11	173	27.27	2.10
Log(GDP)B	326	28.01	2.04	154	27.67	2.07	172	28.31	1.96
Panel Established	327	0.58	0.49	154	0.55	0.50	173	0.61	0.49
Ruling for Plaintiff	327	0.49	0.50	154	0.27	0.44	173	0.69	0.46
Mixed Ruling	327	0.06	0.23	154	0.09	0.29	173	0.03	0.17
Ruling for Defendant	327	0.11	0.31	154	0.06	0.24	173	0.16	0.36
Agricultural Case	327	0.34	0.47	154	0.38	0.49	173	0.29	0.46
Multilateral Case	327	0.69	0.46	154	0.77	0.42	173	0.62	0.49
Discriminatory Measure	327	0.50	0.50	154	0.59	0.49	173	0.41	0.49
"Sensitive Case"	327	0.07	0.26	154	0.16	0.36	173	0.00	0.00
Dispute Length (days)	327	829	891	154	917	1101	173	751	642

The observations include 2 cases where Hong Kong is a participant. These are excluded from our analyses.

Table A2: Robustness Tests: The Onset of WTO Disputes, 1995-2009.

Rare Event Logit: Institutions	W	W=1	Democracy- Autocracy	Democracy- Autocracy>.8
Model	A1	A2	A3	A4
Plaintiff Institutions (INST A)	3.431 (0.629)**	-0.163 (0.367)	2.938 (0.761)**	1.524 (0.354)**
Defendant Institutions (INST B)	0.381 (0.568)	-0.963 (0.366)**	0.601 (0.413)	0.684 (0.283)*
log(GDP)A	0.510 (0.062)**	0.708 (0.086)**	0.535 (0.058)**	0.574 (0.055)**
Log(GDP)B	0.611 (0.074)**	0.868 (0.111)**	0.533 (0.060)**	0.518 (0.059)**
Log(Population)A	0.143 (0.072)*	-0.004 (0.088)	0.152 (0.066)*	0.137 (0.067)*
Log(Population)B	0.352 (0.078)**	0.129 (0.108)	0.443 (0.074)**	0.458 (0.070)**
Year	-0.119 (0.018)**	-0.133 (0.020)**	-0.119 (0.019)**	-0.124 (0.019)**
Leader Change A	2.103 (0.617)**	0.267 (0.191)	1.972 (0.682)**	0.820 (0.452)
INST A* Leader Change A	-2.778 (0.703)**	-0.947 (0.319)**	-2.409 (0.751)**	-1.161 (0.484)*
Leader Change B	0.294 (0.561)	0.506 (0.197)*	-0.463 (0.576)	-0.286 (0.545)
INST B* Leader Change B	-0.367 (0.634)	-0.947 (0.319)**	0.574 (0.617)	0.359 (0.563)
Mutual Democracy	-0.218 (0.212)	0.687 (0.314)*		
Trade/GDP A	-0.003 (0.002)	-0.002 (0.002)	-0.001 (0.003)	0.000 (0.003)
Trade/GDP B	-0.004 (0.003)	-0.004 (0.003)	-0.003 (0.004)	-0.002 (0.004)
Economic Growth A	0.010 (0.027)	0.005 (0.023)	0.016 (0.028)	0.016 (0.027)
Economic Growth B	-0.018 (0.026)	-0.014 (0.025)	-0.014 (0.031)	-0.011 (0.032)
Constant	192.522 (35.330)**	216.904 (38.547)*	191.787 (37.680)**	201.451 (38.023)**
<i>N</i>	199,692	202,344	153,369	202,344

\* $p < 0.05$ ; \*\*  $p < 0.01$

In model A1, Leader Change coded as 1 if leader change occurs in the current or either of the two previous years.

Institutions are modeled as Winning Coalition (WA,WB) in model A1, whether WA=1 in model A2, Polity's democracy-autocracy score in model A3 and whether the Polity score is in the top 4 of the 21 categories in model A4.

Table A3: Concessions, Institutions and Leader Change in Defendant Nation.  
(Leader change within the first two years of dispute)

Concession Size and Leader Change in Defendant	Non-Democratic Defendant (WB<1)		Democratic Defendant (WB=1)	
	No Leader Change	Leader Change	No Leader Change	Leader Change
No Concessions	41 (51%)	8 (20%)	56 (33%)	2 (6%)
Partial Concessions	14 (17%)	3 (7%)	28 (16%)	6 (17%)
Substantial Concessions	26 (32%)	29 (73%)	87 (51%)	27 (77%)
	81	40	171	35

Table A4: Concessions, Institutions and Leader Change in Plaintiff Nation.  
(Leader change within the first two years of dispute)

Concession Size and Leader Change in Plaintiff	Non-Democratic Plaintiff WA<1		Democratic Plaintiff (WA=1)	
	No Leader Change	Leader Change	No Leader Change	Leader Change
No Concessions	50 (50%)	5 (13%)	47 (29%)	5 (19%)
Partial Concessions	21 (21%)	8 (21%)	19 (12%)	3 (12%)
Substantial Concessions	30 (30%)	26 (67%)	95 (59%)	18 (69%)
	101	39	161	26

Table A5: The Impact of Institutions and Leader Change on WTO Outcomes  
(Leader Change within the first 2 years of dispute initiation)

Ordered Probit Model	Defendant Concessions			
	A5	A6	A7	A8
Democracy A (WA=1)	0.282 (0.249)	0.329 (0.258)	0.304 (0.262)	0.377 (0.319)
Leader Change A	0.701 (0.249)**	0.555 (0.255)*	0.561 (0.258)*	0.853 (0.312)**
Leader Change A* (WA=1)	-0.664 (0.372)	-0.586 (0.381)	-0.661 (0.390)	-0.998 (0.490)*
Democracy B (WB=1)	0.654 (0.272)*	0.519 (0.281)	0.555 (0.291)	0.940 (0.353)**
Leader Change B	0.905 (0.265)**	0.844 (0.268)**	0.853 (0.276)**	0.914 (0.328)**
Leader Change B* (WB=1)	-0.167 (0.366)	-0.043 (0.368)	-0.113 (0.373)	0.064 (0.466)
Log(GDP per capita)A	0.160 (0.100)	0.114 (0.103)	0.150 (0.106)	0.248 (0.126)*
Log(GDP per capita)B	-0.170 (0.111)	-0.199 (0.114)	-0.164 (0.118)	-0.381 (0.159)*
Log(GDP)A	-0.029 (0.046)	-0.033 (0.048)	-0.038 (0.049)	-0.058 (0.061)
Log(GDP)B	0.008 (0.049)	0.024 (0.051)	-0.006 (0.053)	0.063 (0.066)
Log(Dispute length)	0.224 (0.063)**	0.148 (0.080)	0.130 (0.083)	0.129 (0.106)
Panel Established		0.482 (0.203)*	0.159 (0.247)	0.046 (0.311)
Ruling for Plaintiff		-0.710 (0.164)**	-0.569 (0.176)**	-0.332 (0.223)
Mixed Ruling		-0.791 (0.328)*	-0.616 (0.337)	-0.778 (0.421)
Ruling for Defendant		0.042 (0.285)	0.101 (0.290)	0.117 (0.387)
Agricultural Case			-0.128 (0.166)	-0.295 (0.214)
Multilateral Case			0.505 (0.233)*	0.551 (0.289)
Discriminatory Measure			0.195 (0.151)	0.422 (0.200)*
“Sensitive Case”			-0.350 (0.272)	0.054 (0.354)
Threshold 1	1.020 (1.571)	-0.004 (1.652)	-0.185 (1.698)	0.483 (1.935)
Threshold 2	1.499 (1.571)	0.513 (1.652)	0.343 (1.699)	1.015 (1.937)
Observations	325	325	325	215

\*  $p < 0.05$ ; \*\*  $p < 0.01$